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Claims:

1.   Apparatus for generating image data, comprising:

memory means configured to store data defining a volume comprising a plurality of objects and at least one viewport, memory means configured to store motion data for each of said objects, configuration data for said viewport and instructions, and processing means configured by said instructions to perform the steps of:

(a)   for each of said objects, defining said motion data in response to user input as a shutter length and a motion path within said volume;

(b)   for each of said objects, calculating a position along said motion path at an interval of time, wherein said interval is dependent upon said shutter length for said object, and translating said object to said position within said volume;

(c)   rendering said objects through said viewport to produce a sample;

(d)   repeating steps (b) and (c) a user-defined number of times at different intervals to produce a number of samples; and

(e)   blending said samples to generate an image frame wherein each of said objects is independently motion-blurred.

2.   Apparatus according to claim **1**, wherein said motion path is defined by a continuous function.

3.   Apparatus according to claim **1**, wherein said motion path is defined by a lookup table.

4. Apparatus according to claim **1**, wherein said configuration data for said viewport comprises a view frustum and a focal length.

5. Apparatus according to claim **1**, wherein for each of said objects said interval of time is a fraction of a frame.

6. Apparatus according to claim **5**, wherein for each of said objects said fraction of a frame is calculated by dividing said shutter length by said user-defined number.

7. A method for generating image frames from data defining a volume including a plurality of objects and at least one viewport, comprising the steps of

(a)   for each of said objects, defining said motion data in response to user input as a shutter length and a motion path within said volume;

(b)   for each of said objects, calculating a position along said motion path at an interval of time, wherein said interval is dependent upon said shutter length for said object, and translating said object to said position within said volume;

(c)   rendering said objects through said viewport to produce a sample;

(d)   repeating steps (b) and (c) a user-defined number of times at different intervals to produce a number of samples; and

(e)   blending said samples to generate an image frame wherein each of said objects is independently motion-blurred.

8. A method according to claim **7**, wherein said motion path is

defined by a continuous function.

9.   A method according to claim **7**, wherein said motion path is defined by a lookup table.

10.   A method according to claim **7**, wherein said configuration data for said viewport comprises a view frustum and a focal length.

11.   A method according to claim **7**, wherein for each of said objects said interval of time is a fraction of a frame.

12.   A method according to claim **11**, wherein for each of said objects said fraction of a frame is calculated by dividing said shutter length by said user-defined number.

13.   A computer readable medium having computer readable instructions executable by a computer, such that said computer performs the steps of:

(a)   defining image data as a volume including a plurality of objects and at least one viewport;

(b)   for each of said objects, defining a shutter length and a motion path within said volume in response to user input;

(c)   for each of said objects, calculating a position along said motion path at an interval of time, wherein said interval is dependent upon said shutter length for said object, and translating said object to said position within said volume;

(d)   rendering said objects through said viewport to produce a

sample;

(e)   repeating steps (c) and (d) a user-defined number of times at different intervals to produce a number of samples; and

(f)   blending said samples to generate an image frame wherein each of said objects is independently motion-blurred.

defining a motion path for each of said objects within said volume in reply to user input;

translating said object along said path over a user-specified period of time;

rendering said object through said viewport at portions of said user-specified time period; and

blending the resulting plurality of rendered objects to generate said image data.

14.   A computer-readable medium according to claim **13**, wherein said motion path is defined by a continuous function.

15.   A computer-readable medium according to claim **13**, wherein said motion path is defined by a lookup table.

16.   A computer-readable medium according to claim **13**, wherein said configuration data for said viewport comprises a view frustum and a focal length.

17.   A computer-readable medium according to claim **13**, wherein for each of said objects said interval of time is a fraction of a frame.

18.   A computer-readable medium according to claim **17**, wherein for each of said objects said fraction of a frame is calculated by dividing said shutter length by said user-defined number.

5   19.   A computer system programmed to generate image data, including memory means configured to store data as a volume comprising at least one object and at least one viewport, memory means configured to store motion data for said object, configuration data for said viewport and instructions, and processing means configured by said instructions to

10   perform the steps of

(a)   for each of said objects, defining said motion data in response to user input as a shutter length and a motion path within said volume;

(b)   for each of said objects, calculating a position along said motion path at an interval of time, wherein said interval is dependent upon

15   said shutter length for said object, and translating said object to said position within said volume; ·

(c)   rendering said objects through said viewport to produce a sample;

(d)   repeating steps (b) and (c) a user-defined number of times at

20   different intervals to produce a number of samples; and

(e)   blending said samples to generate an image frame wherein each of said objects is independently motion-blurred.

20.   A computer system programmed according to claim **19**,

25   wherein said motion path is defined by a continuous function.

21.   A computer system programmed according to claim **19**,

wherein said motion path is defined by a lookup table.

22. A computer system programmed according to claim **19**, wherein said configuration data for said viewport comprises a view frustum and a focal length.

23. A computer system programmed according to claim **19**, wherein for each of said objects said interval of time is a fraction of a frame.

24. A computer system programmed according to claim **23**, wherein for each of said objects said fraction of a frame is calculated by dividing said shutter length by said user-defined number.